

Influenza Overview

- WHO and FDA recommended influenza vaccine composition for the Northern Hemisphere 2008-2009
- Antiviral resistance

Alexander Klimov, Ph.D.
Virus Surveillance and Diagnosis Branch
Influenza Division
NCIRD, CCID, CDC

Summary - Influenza A (H1N1)

- H1N1 viruses predominated in most countries; caused outbreaks in some countries
- Many viruses were closely related to A/Solomon Islands/3/2006
- Increasing proportion antigenically distinct from A/Solomon Is./3/06 and closely related to A/Brisbane/59/2007
- Majority of HA sequences in clade represented by A/Brisbane/59/2007
- Increasing proportion of NAs with H274Y mutation, causing oseltamivir resistance
- Oseltamivir-sensitive and -resistant viruses antigenically similar

Summary - Influenza A (H3N2)

- H3N2 influenza was sporadic in many countries and outbreaks were reported in the United States
- Some H3N2 viruses were antigenically similar to A/Wisconsin/67/2005 vaccine virus. However, the majority was closely related to the more recently recommended vaccine virus, A/Brisbane/10/2007
- Phylogenetically, the majority of recent H3N2 viruses fall into the HA clade represented by A/Brisbane/10/2007
- Postinfection ferret antisera against A/Brisbane/10/2007 virus reacted well with the majority of recent H3N2 viruses

Summary - Influenza B

- Influenza B viruses circulated in many countries and outbreaks were reported in China and the USA
- Viruses of both B/Victoria/2/87 and B/Yamagata/16/88 lineages continued to co-circulate in many countries
- B/Yamagata-like viruses predominated
- B/Yamagata/16/88 lineage viruses were antigenically closely related to B/Florida/4/2006 reference virus

Vaccine strains recommendations

➤ WHO - February 14, 2008:

- an A/Brisbane/59/2007 (H1N1)-like virus ^a
- an A/Brisbane/10/2007 (H3N2)-like virus ^b
- a B/Florida/4/2006-like virus ^c

Possible vaccine candidates:

^a A/Brisbane/59/2007; A/South Dakota/06/2007

^b A/Brisbane/10/2007; A/Uruguay/716/2007

^c B/Florida/4/2006; B/Brisbane/3/2007

➤ VRBPAC/FDA – February 21, 2008

- Confirmed WHO recommendations

Resistance to Adamantanes

(CDC data; virus collection period Oct 1, 2007 – Feb 2, 2008)

	N tested	N resistant	%
US isolates:	282	88	31.2
A/H1N1	208	15	7.2
A/H3N2	74	73	98.6
Foreign isolates:	122	67	54.9
A/H1N1	91	36	39.6
A/H3N2	31	31	100
Global isolates:	404	155	38.4
A/H1N1	299	51	17.1
A/H3N2	105	104	99.0

Resistance to Neuraminidase Inhibitors

(CDC data; virus collection period Oct 1, 2007 – Feb 2, 2008)

	N tested	Resistant (%)	
		Zanamivir	Oseltamivir
US isolates:	471	0 (0)	27 (5.7%)
A/H1N1	312	0 (0)	27 (8.7%)
A/H3N2	76	0 (0)	0 (0)
Influenza A	388	0 (0)	27 (7.0%)
Influenza B	83	0 (0)	0 (0)
Foreign isolates:	174	0 (0)	4 (2.3%)
A/H1N1	95	0 (0)	4 (4.2%)
A/H3N2	42	0 (0)	0 (0)
Influenza A	137	0 (0)	4 (2.9%)
Influenza B	37	0 (0)	0 (0)
Global isolates:	645	0 (0)	31 (4.8%)
A/H1N1	407	0 (0)	31 (7.6%)
A/H3N2	118	0 (0)	0 (0)
Influenza A	525	0 (0)	31 (5.9%)
Influenza B	120	0 (0)	0 (0)

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